

2019 ANNUAL MEETING

December 5 | Gaylord National Harbor, MD

Didi Davis

VP, Informatics, Conformance & Interoperability

The Sequoia Project

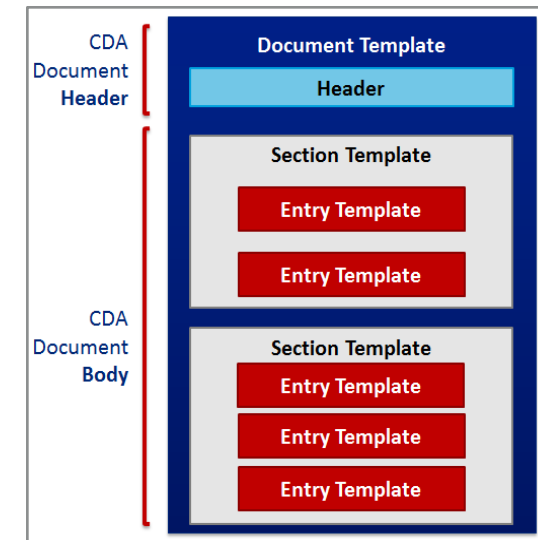
eHealth ExchangeTM

Content Remediation – Agenda

1. Content Testing Program Background & History
2. Value Set Authority Center (VSAC) Tips for Value Sets
3. Comparison of Existing Industry Content Testing Tools
4. Current Content Testing Program Status
5. Data Quality Challenges and Impact
6. Identify how best to remediate content errors and
 - How to understand the testing report
 - Understand how to report feedback for Issues/questions found in the tooling reports
 - How to leverage the the model-based validation report versus the scorecard
7. Display Tooling Support (XML and Stylesheet Formatting)

Content Testing Program Background & History

1. 06/2015 Testing Workgroup approved by the eHealth Exchange Coordinating Committee (CC)
2. 07/2016 Content Testing Pilot Completed
3. 01/2017 Requirements Effective
 - MU 2011 Edition (HL7 CCD/C32)
 - MU 2014 Edition (HL7 C-CDA R1.1) + Companion Guide
 - MU 2015 Edition (HL7 C-CDA R2.1) + Companion Guide
4. 02/2018 Sequoia Interoperability Testing Platform Launched/Available – Content
5. 10/2019 All Existing and New Participants MUST Complete Initial Testing
6. 06/2021 All Participants have 18 months to remediate Reported Errors
 - Participants unable to remediate all errors and conformance issues should submit a remediation plan and/or a conformance waiver request to the eHealth Exchange for Coordinating Committee consideration within **16 months**



Value Sets
<https://vsac.nlm.nih.gov/>

Requires UMLS
license/account

The screenshot displays the Value Set Authority Center (VSAC) website. At the top, the NIH logo and "Value Set Authority Center U.S. National Library of Medicine" are visible. A navigation bar includes links for "Welcome", "Search Value Sets", "Download", "Browse Code Systems", and "Help". A "Welcome" message and links for "Sign In", "Author Registration", and "Contact" are in the top right. A modal window titled "VSAC Login" is open, prompting users to use their UMLS account. It contains fields for "Username:" and "Password:", a "Login" button, and links for "Forgot Username" and "Forgot Password". Below the login fields, a link says "Don't have a UMLS license/account? Request One Now". A yellow warning banner is also present, stating: "WARNING: This warning banner provides privacy and security notices consistent with applicable federal laws, directives, and other federal guidance for accessing this Government system, which includes all devices/storage media attached to this system. This system is provided for Government-authorized use only. Unauthorized or improper use of this system is prohibited and may result in disciplinary action and/or civil and criminal penalties. At any time, and for any lawful Government purpose, the government may monitor, record, and audit your system usage and/or intercept, search and seize any communication or data transiting or stored on this system. Therefore, you have no reasonable expectation of privacy. Any communication or data transiting or stored on this system may be disclosed or used for any lawful Government purpose." The main content area is divided into sections: "All Value Sets" (with a "Search" button), "CMS eCQM Value Sets" (with a "Learn More" link), "CMS Pre-rulemaking eCQM Value Sets" (with a description of pre-rulemaking eCQMs), and "CMS Hybrid Value Sets" (with a "Search" button and a "Learn More" link).

Value Set Authority Center
U.S. National Library of Medicine

Welcome

Sign In | Author Registration | Contact

Welcome Search Value Sets Download Q Browse Code Systems Help

The VSAC is a repository and authoring tool for public value sets created by external programs. Value sets are lists of codes and corresponding terms, from NLM-hosted standard clinical vocabularies (such as SNOMED CT®, RxNorm, ICD-9-CM, and ICD-10-CM). The VSAC does not create value set content. The VSAC also provides a tool for authoring and publishing value sets. The VSAC is provided by the National Library of Medicine (NLM), in collaboration with the Office of the Assistant Secretary for Health Information Policy and Standards.

Subscribe to the VSAC Updates listserv for VSAC announcements.

VSAC Login

Please use your UMLS account to login to VSAC

Username: Password:

Login Forgot Username Forgot Password

Don't have a UMLS license/account? Request One Now

WARNING

This warning banner provides privacy and security notices consistent with applicable federal laws, directives, and other federal guidance for accessing this Government system, which includes all devices/storage media attached to this system. This system is provided for Government-authorized use only. Unauthorized or improper use of this system is prohibited and may result in disciplinary action and/or civil and criminal penalties. At any time, and for any lawful Government purpose, the government may monitor, record, and audit your system usage and/or intercept, search and seize any communication or data transiting or stored on this system. Therefore, you have no reasonable expectation of privacy. Any communication or data transiting or stored on this system may be disclosed or used for any lawful Government purpose.

Programs

All Value Sets

Explore the entire VSAC repository of published value sets. Search by value set name, object identifier (OID), codes, terms and purpose. Filter by release program, steward, and code systems.

Search

CMS eCQM Value Sets

eCQM health information measures require and are more complex than traditional clinical measures. Learn More

CMS Pre-rulemaking eCQM Value Sets

CMS pre-rulemaking eCQMs include measures that are developed, but specifications are not finalized for reporting in a CMS program. The Pre-rulemaking eCQM value sets

CMS Hybrid Value Sets

Core Clinical Data Elements and Hybrid Measures use a set of core clinical data elements, clinical variables from electronic health records (EHRs), that are routinely collected and can be feasibly extracted for use in risk-adjusted hospital-level hybrid outcome measures. Learn More

Search

Refine by: Steward Code System

Query:

Search Results

API Resource

Results for HL7 C-CDA : C-CDA R2.1 2019-06-28

Select a hyperlinked OID to see its value set details.

Matched Value Sets

Download View Toggle Clear Page 1 of 2 120 View 1 - 120 of 136

<input checked="" type="checkbox"/>	Name	Code System	Definition Type	Steward	OID	Code Count
<input checked="" type="checkbox"/>	Ability	SNOMEDCT	Intensional	MD Partners	2.16.840.1.113883.11.20.9.46	16
<input checked="" type="checkbox"/>	ActPriority	ActPriority	Extensional	HL7 Terminology	2.16.840.1.113883.1.11.16866	15
<input checked="" type="checkbox"/>	ActStatus	ActStatus	Extensional	HL7 Terminology	2.16.840.1.113883.1.11.15933	10
<input checked="" type="checkbox"/>	ADL Result Type	LOINC	Extensional	MD Partners	2.16.840.1.113883.11.20.9.47	6
<input checked="" type="checkbox"/>	AdministrationUnitDoseForm	NCI	Extensional	HL7 Terminology	2.16.840.1.113762.1.4.1021.30	11
<input checked="" type="checkbox"/>	Administrative Gender (HL7 V3)	AdministrativeGen	Extensional	HL7 Terminology	2.16.840.1.113883.1.11.1	3
<input checked="" type="checkbox"/>	Advance Care Planning Services Grouping	CPT SNOMEDCT	Grouping	ADVault	2.16.840.1.113883.11.20.9.69.1.3	5
<input checked="" type="checkbox"/>	Advance Directive Content Type SCT	SNOMEDCT	Extensional	ADVault	2.16.840.1.113762.1.4.1115.5	15
<input checked="" type="checkbox"/>	Advance Directive Type Code	SNOMEDCT	Extensional	HL7 Terminology	2.16.840.1.113883.1.11.20.2	8
<input checked="" type="checkbox"/>	Advance Directives Categories	LOINC	Extensional	HL7 Terminology	2.16.840.1.113883.1.11.15	8
<input checked="" type="checkbox"/>	AgePQ_UCUM	UCUM	Extensional	HL7 Terminology	2.16.840.1.113883.11.20.9.21	8
<input checked="" type="checkbox"/>	Allergy and Intolerance Type	SNOMEDCT	Extensional	HL7 Terminology	2.16.840.1.113883.3.88.12.3221.6.2	9
<input checked="" type="checkbox"/>	Allergy Clinical Status	SNOMEDCT	Extensional	HL7 Terminology	2.16.840.1.113762.1.4.1099.29	3
<input checked="" type="checkbox"/>	Body Site Value Set	SNOMEDCT	Intensional	HL7 Terminology	2.16.840.1.113883.3.88.12.3221.8.9	5 38631
<input checked="" type="checkbox"/>	Care Model	SNOMEDCT	Extensional	MD Partners	2.16.840.1.113883.11.20.9.61	9

Tips for Downloading Value Sets

Comparison of Existing Industry Content Testing Tools

ONC SITE

(<https://sitenv.org/sandbox-ccda>)

- Open Source/API Available
- Limited Document Types, Section types and entries
- Value Sets from 06/2018
- Errata Updates – Release Notes
- Does not store testing report
- Incorporates Scorecard Rubrics

Sequoia Interoperability Testing Platform (ITP)

(<https://gazellecontent.sequoiaproject.org/EVSCClient/home.seam?cid=368>)

- Open Source/API Available
- Validates all document types including C32, HL7 C-CDA R1.1 & R2.1
- Value Sets from 06/2019
- Errata Updates – current 06/2019
- Permanent Link testing report storage
- Missing Scorecard Rubrics

Content Testing Status

- **15 or 5%** of Eligible Participants organizations have **Passed**
 - <https://ehealthexchange.org/participants/>
- **95%** have Submitted and **Failed** for various reasons, the most common are:
 - Vocabulary issues such as incorrect code system reference or incorrect value from value set referenced in the Value Set Authority Center (VSAC)
 - Required fields missing such as Street Address or other required CCDS data classes – US Realm Header Requirements
- >7000 Documents Tested with >70% tested against HL7 C-CDA R2.1 Standards
- No known defects in the tooling at the present time
 - Issues as they are identified will be documented on the tooling home screen
 - Validators were last rebuilt and tested 11/29/2019
- Sequoia working with Vendors and their Customers to coordinate remediation



Industry-wide Content Pain Points



Optionality:

More than one way to do things and inconsistent implementations across vendors



Terminology:

Inconsistent terminology usage




Specification Ambiguity



Complexity:

The C-CDA standard is difficult to understand and consume and is lacking in clearly documented examples

HL7 CDA Example Search

**HL7 CDA Example Search**

HelpReport an Issue

search criteria

enter a word or words to search

filter by example status

APPROVEDWITHDRAWNPENDINGCERTIFICATION

Search

[return to Main Search](#)

Name
<div>Allergies</div> <div>Allergies and Intolerances Section Examples from C-CDA</div> <div>SECTION EXAMPLES</div>
<div>Header</div> <div>C-CDA Header Examples</div> <div>SECTION EXAMPLES</div>
<div>Encounters</div> <div>Encounter Section Examples from C-CDA</div> <div>SECTION EXAMPLES</div>
<div>Family History</div> <div>Family History Section Examples from C-CDA</div> <div>SECTION EXAMPLES</div>
<div>Functional Status</div> <div>Functional Status Section Examples from C-CDA</div> <div>SECTION EXAMPLES</div>
<div>General</div> <div>General Examples from C-CDA</div> <div>SECTION EXAMPLES</div>

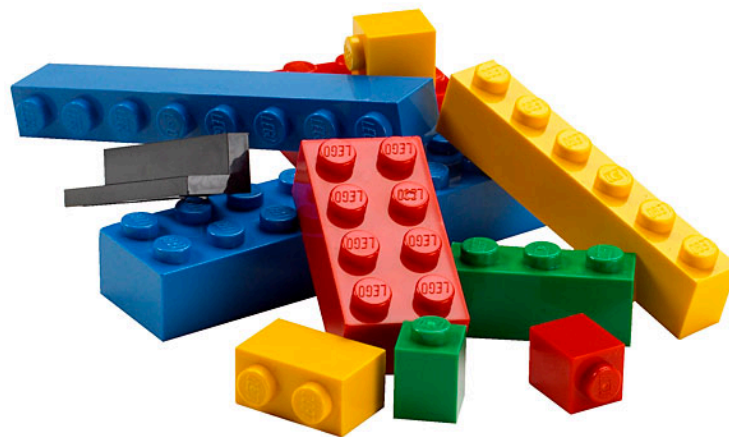
Data Quality Challenges and Impact

- How do you interface computers and humans in the medical environment?
 - Computers “think” structured and encoded data
 - Humans “think” in sentences, paragraphs, concepts
- Data Quality challenges and related clinical workflow of the systems used
 - Data Capture, Data Storage, Data Exchange
 - Transitions of Care (ToC) is a common occurrence that if improved, benefits the patient population – Encounter based documents should be supported/exchanged
 - ✓ Consistent data representation and interpretation is necessary
 - ✓ Semantic Interoperable Exchange of the data captured and stored
 - ✓ C-CDA and FHIR is the US/ONC recommended mechanism for TOC - TEFCA/USCDI

C-CDA R1.1 (9 Types) and R2.1 Document Types (14 Total)

C-CDA R1.0/R1.1

- Consultation Note
- Continuity of Care Document (CCD)
- Diagnostic Imaging Report
- Discharge Summary
- History and Physical
- Operative Note
- Procedure Note
- Progress Note
- Unstructured Document

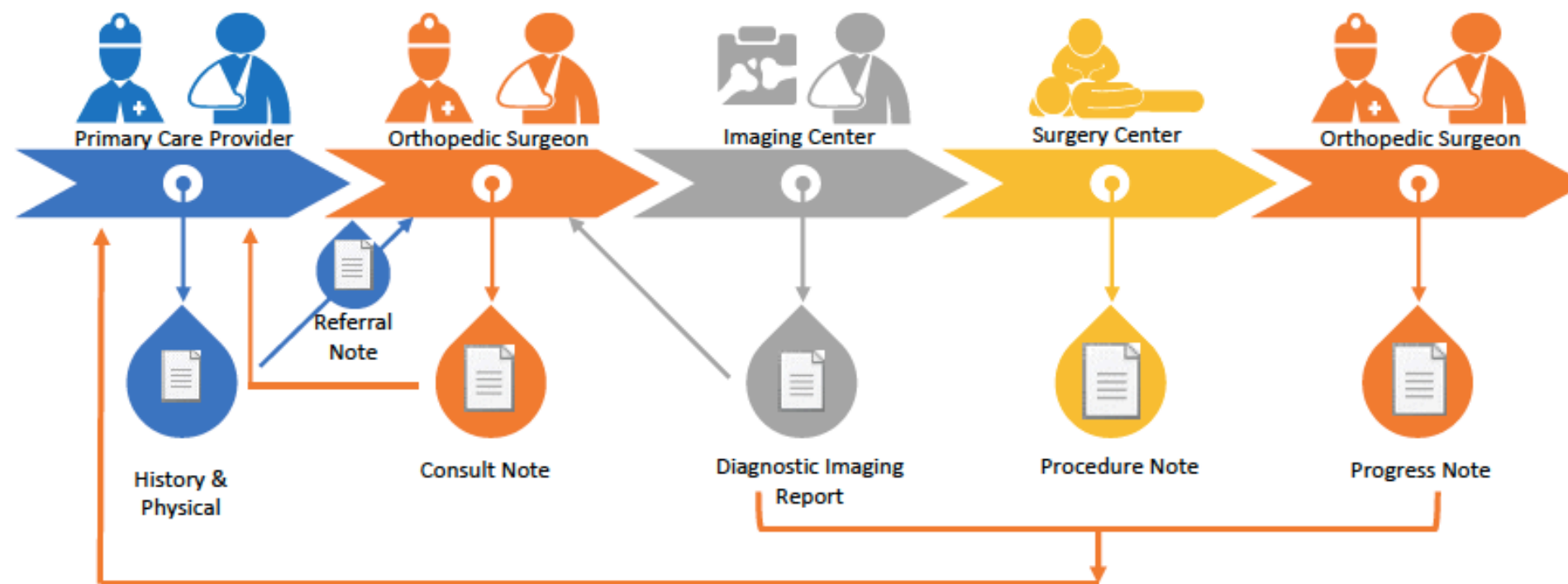


New as of C-CDA R2.0/R2.1

- Care Plan
- Referral Note
- Transfer Summary
- Clinical Note
- Patient Generated Summary

C-CDA: Exchanging the Patient's Story

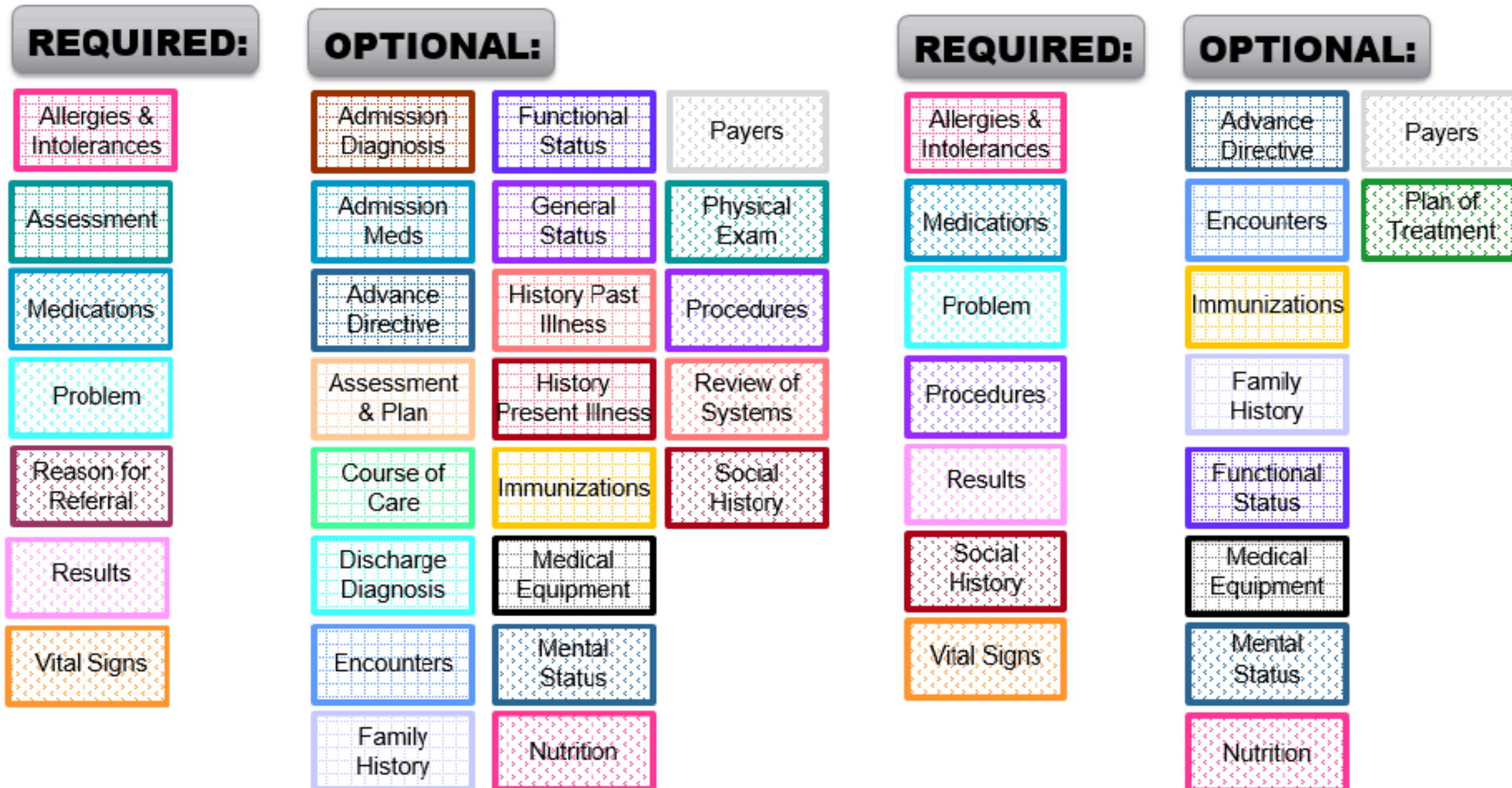
- Today, most of the clinical data exchanged by systems leverages **ONLY** the CCD
- Many documents are not created by a human but by a machine on demand when queried. Data should be exchanged using appropriate document types.



Transfer Summary

CCD

eHealth Exchange™



HL7 C-CDA R2.1 – 70 Sections

	Admission Diagnosis	Admission Meds	Advance Directive	Allergies & Intolerances	Anesthesia	Assessment & Plan	
Assessment	Chief Complaint Reason for Visit	Chief Complaint	Complications	Course of Care	DICOM Object Catalog	Discharge Diagnosis	Discharge Diet
Discharge Medications	Encounters	Family History	Fetus Subject Context	Findings	Functional Status	General Status	Goals
Health Concerns	Health Status Eval/Outcomes	History Past Illness	History Present Illness	Hospital Consultations	Hospital Course	Hosp. Disch. Instructions	Hosp. Disch. Physical
Hosp. Disch. Studies Sum.	Immunizations	Implants	Instructions	Interventions	Medical (Gen) History	Medical Equipment	Medications Administered
Medications	Mental Status	Nutrition	Objective	Observer Context	Operative Note Fluids	Op Note Surgical Proc.	Payers
Physical Exam	Plan of Treatment	Planned Procedure	Postoperative Diagnosis	Postprocedure Diagnosis	Preoperative Diagnosis	Problem	Procedure Description
Procedure Disposition	Procedure Est. Blood Loss	Procedure Findings	Procedure Implants	Procedure Indications	Procedure Specimens	Procedures	Reason for Referral
Reason for Visit	Results	Review of Systems	Social History	Subjective	Surgery Description	Surgical Drains	Vital Signs

Why is using the right type of document important?

- Each CDA Document is designed to address a specific purpose
 - Use Cases should be reviewed to determine appropriate documents for use to support optimal patient care
 - Documents need to fit the situation
 - Share information that is relevant and pertinent
- Establish the right context for the information being shared
 - Information about multiple encounters
 - Information about a single encounter
 - Information about a service(s) within an encounter
 - Information that is related to a specific order
 - Patient generated information vs. Clinician or System generated data

Incremental Improvements to Content Exchanged will lead to Improved Interoperability and Optimized Workflows

eHealth Exchange™



Process for Creating Consistent & Robust HL7 C-CDAs



Content Priorities

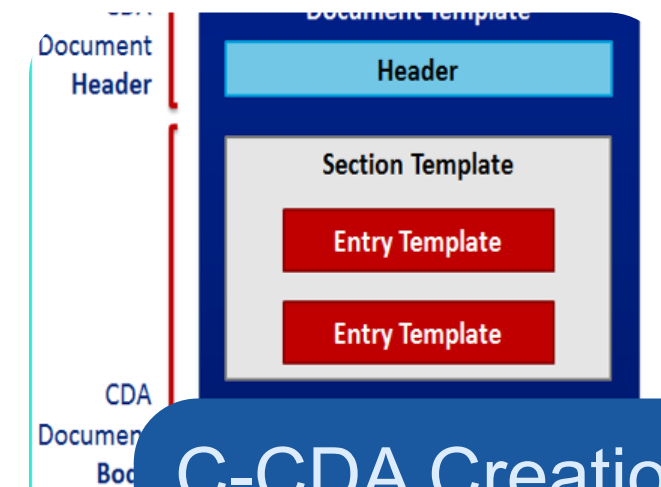
- Clinicians
- Business Office
- Others



Data Mapping	SUT	HL7 C-CDA CCD	
	0	UN	
Patient Gender	1 (= "Male")	M	"Administrative Gender" value
	2 (= "Female")	F	
"Continuing"	1 (= "Yes")	active	"Problem Observation"
	2 (= "No")	inactive	

Data Mapping

- SDO Requirements
- Vendor specific data model overlay
- Semantic Interoperability Transformation



C-CDA Creation

- Identify Sources
- System Configuration
- Value Sets
- Internal/External transformation

Process to Report Questions, Issue, Defects

- Email one question/issue/defect per email to testing@sequoiaproject.org
 - Provide as much information as possible including:
 - Screenshots
 - Testing Permanent Link with Issue
 - Reference details for specification questions/issues

Validate CDA documents

Information

File Name

DemoCCD 20161105.xml

OID :

1.3.6.1.4.1.12559.11.28.1444

Schematron :

N/A (Version N/A)

Schematron Validation ...

N/A

Validation Date :

9/28/17 12:25:53 AM (CEST GMT+0200)

Model Based Validator :

HL7 - C-CDA R2.1 - Meaningful Use Stage 3 (Version N/A)

Model Based Validation...

FAILED

Permanent link :

<https://gazellecontent.sequoiaproject.org/EVSCClient/detailedResult.seam?type=CDA&oid=1.3.6.1.4.1.12559.11.28.1444>

Data Visibility :

Private - Owned By SequoiaTest / SEQUOIA

Make this result public

share this result

Validate again

Perform another validation

Screenshots of Issue Reporting Samples

4244

4245

4246

4247

4248

4249

4250

4251

4252

4253

<entryRelationship typeCode="COMP">

<act classCode="ACT" moodCode="EVN">

<templateId root="2.16.840.1.113883.10.20.22.4.61" />

<templateId root="2.16.840.1.113883.10.20.22.4.61" extension="2015-08-01" />

<id root="8A9522FA-0A08-2E1D-3E2A-E7BA679403B3" />

<code codeSystem="2.16.840.1.113883.3.88.12.3221.5.2" codeSystemName="Health Insurance Type" code="C1" displayName="Commercial">

<originalText><reference value="#insuranceType-1"/></originalText>

<translation co

<originalText

</translation>

↑ (14/221)

↓

Test

Location

Description

ccda212704

/ClinicalDocument/component/structuredBody/component[8]/section/entry[1]/act/entryRelationship[0]/act

In Policy Activity (V3), the code of /hl7:act[hl7:templateId/@root='2.16.840.1.113883.10.20.22.4.61']/hl7:c

ode/hl7:translation SHALL be from the valueSet 2.16.840.1.114222.4.11.3591 (flexibility : 2018-08-27T0

0:00:00) (Item : CONF:1198-32852)[Constraint...] [Assertion...]

E - 14

a. This code SHALL contain at least one [1..*] translation, which SHOULD be selected

from ValueSet Payer urn:oid:2.16.840.1.114222.4.11.3591 (CONF:1198-

32852).

CONF: 1198-32852

In the validator the requirement to use that valueSet is a SHALL. In the HL7 R2.1 spec, the cited requirement is a SHOULD:

Defects Listing Sample – July 31 – November 29, 2019

Please reference the Known Open Issues below before reporting tooling defects:


1. **CONF: 81-7322** Improper Error being reported for Problem Status Value - See Example below:
In Problem Status, in /hl7:observation[hl7:templateId/@root='2.16.840.1.113883.10.20.22.4.6'], the element(s) hl7:value SHALL be from the datatype CE (Item : CONF:81-7322)
Per June 2019 Errata published specifications the datatype should be CD and be labeled as CONF: 1198-7365.
2. **CONF: 1198-32852** is a SHOULD and should only be generating a warning in the validator.
3. **CONF:1098-7301** is a SHOULD and should only be generating a warning in the validator
4. **CONF: 81-7291** The tooling is treating streetAddressLine like it has a cardinality of 1..1 when it should be 1..4 according to spec. If more than one streetAddressLine is in a document, no error should be firing.
5. **CONF: 1098-32478** is reporting as **SHALL** contain at least ONE hl7:author - But the implementation guide says 0-* **SHOULD** for CONF: 1098-32478.

If your testing shows any of the above errors, please disregard at the present time until the validator can be rebuilt. These open issues are in the process of being remediated in the tooling and we will announce when updated.

Review Validation Report for Pass/Fail

Validate CDA documents

Information

File Name DemoCCD 20161105.xml 




OID : 1.3.6.1.4.1.12559.11.28.1444

Schematron : N/A (Version N/A)

Schematron Validation ... N/A

Validation Date : 9/28/17 12:25:53 AM (CEST GMT+0200)

Model Based Validator : HL7 - C-CDA R2.1 - Meaningful Use Stage 3 (Version N/A)

Model Based Validation... **FAILED**   

Permanent link : <https://gazellecontent.sequoiaproject.org/EVSCClient/detailedResult.seam?type=CDA&oid=1.3.6.1.4.1.12559.11.28.1444>

Data Visibility : Private - Owned By SequoiaTest / SEQUOIA

Make this result public

share this result

Validate again

Perform another validation

Validation Results

Model based validation

Scorecard

XML Validation Report **PASSED**

The document you have validated is supposed to be a wellformed XML document. The validator has checked if it is well-formed, results of this validation are gathered in this section.

The XML document is well-formed

XSD Validation detailed Result **PASSED**

Your XML document has been validated with the appropriate XSD schema, here is the detail of the validation outcome.

The XML document is valid regarding the schema

Gazelle Objects Checker validator results **FAILED**

Summary of checks

579

3937

Tree of the templates used in this document

☐ Show Templates

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Review Content Testing Validation Results

Model based validation Tab

Validation Results

Model based validation

Scorecard

XML Validation Report

PASSED

The document you have validated is supposed to be a wellformed XML document. The validator has checked if it is well-formed, results of this validation are gathered in this section.

The XML document is well-formed

XSD Validation detailed Result

PASSED

Your XML document has been validated with the appropriate XSD schema, here is the detail of the validation outcome.

The XML document is valid regarding the schema

Gazelle Objects Checker validator results

FAILED

Summary of checks

579

3937

Severity

Errors

Warnings

Infos

Unknowns

Reports

Type

Datatype

Vocabulary

Context

Mandatory

Cardinality

Fixed Value

57

9

0

0

100

0

3

12

29

58

12

Test

Location

Description

Type

ccdamu33324

/ClinicalDocument

In US Realm Header (V3), in /hl7:ClinicalDocument[hl7:templateId/@root='2.16.840.1.113883.10.20.22.1.1']/hl7:legalAuthenticator/hl7:assignedEntity/hl7:id, the attribute root SHALL have the value '2.16.840.1.113883.4.6' if present (Item : CONF:1198-16823)[[Constraint...](#)] [[Assertion...](#)]

Fixed value

ccdamu33465

/ClinicalDocument/component/structuredBody/component[0]/section/entry[0]/act

In Allergy Concern Act (V3), in /hl7:act[hl7:templateId/@root='2.16.840.1.113883.10.20.22.4.30']/hl7:code, the attribute code SHALL have the value 'CONC' if present[[Constraint...](#)] [[Assertion...](#)]

Fixed value

ccdamu33466

/ClinicalDocument/component/structuredBody/component[0]/section/entry[0]/act

In Allergy Concern Act (V3), in /hl7:act[hl7:templateId/@root='2.16.840.1.113883.10.20.22.4.30']/hl7:code, the attribute codeSystem SHALL have the value '2.16.840.1.113883.5.6' if present[[Constraint...](#)] [[Assertion...](#)]

Fixed value

E - 1

E - 2

E - 3

Tree of the templates used in this document

☐ Show Templates

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Template Summary Breakdown

Validation Results

Model based validation

Scorecard

XML Validation Report

PASSED

The document you have validated is supposed to be a wellformed XML document. The validator has checked if it is well-formed, results of this validation are gathered in this section.

The XML document is well-formed

XSD Validation detailed Result

PASSED

Your XML document has been validated with the appropriate XSD schema, here is the detail of the validation outcome.

The XML document is valid regarding the schema

Gazelle Objects Checker validator results

FAILED

Summary of checks

57 9 3937

Severity

Errors 57

Warnings 9

Infos 0

Unknowns 0

Reports 100

Type

Datatype 0

Vocabulary 3

Context 12

Mandatory 29

Cardinality 58

Fixed Value 12

Test name

All tests

Test

Location

Description

Type

ccdamu33324

/ClinicalDocument

In US Realm Header (V3), in /hl7:ClinicalDocument[hl7:templateId/@root='2.16.840.1.113883.10.20.22.1.1']/hl7:legalAuthenticator/hl7:assignedEntity/hl7:id, the attribute root SHALL have the value '2.16.840.1.113883.4.6' if present (Item : CONF:1198-16823)[Constraint...] [Assertion...]

Fixed value

ccdamu33465

/ClinicalDocument/component/structuredBody/component[0]/section/entry[0]/act

In Allergy Concern Act (V3), in /hl7:act[hl7:templateId/@root='2.16.840.1.113883.10.20.22.4.30']/hl7:code, the attribute code SHALL have the value 'CONC' if present[Constraint...] [Assertion...]

Fixed value

ccdamu33466

/ClinicalDocument/component/structuredBody/component[0]/section/entry[0]/act

In Allergy Concern Act (V3), in /hl7:act[hl7:templateId/@root='2.16.840.1.113883.10.20.22.4.30']/hl7:code, the attribute codeSystem SHALL have the value '2.16.840.1.113883.5.6' if present[Constraint...] [Assertion...]

Fixed value

ccdamu3666

/ClinicalDocument/component/structuredBody/component[0]/section/entry[0]/act/entryRelationship[0]/observation/entryRelationship[2]/observation

In Reaction Observation (V2), in /hl7:observation[hl7:templateId/@root='2.16.840.1.113883.10.20.22.4.9'], the element(s) hl7:code SHALL not have nullFlav

Tree of the templates used in this document

Click on template ID to filter the list of notifications

Show Templates

2.16.840.1.113883.10.20.22.1.1 - USRealmHeaderV3

2.16.840.1.113883.10.20.22.1.2 - ContinuityofCareDocumentCCDV

2.16.840.1.113883.10.20.22.2.6.1 - AllergiesandIntolerancesSec

2.16.840.1.113883.10.20.22.4.30 - AllergyConcernActV3

2.16.840.1.113883.10.20.22.4.7 - AllergyIntoleranceObserv

2.16.840.1.113883.10.20.22.4.28 - AllergyStatusObserv

2.16.840.1.113883.10.20.22.4.8 - SeverityObservationV

2.16.840.1.113883.10.20.22.4.9 - ReactionObservationV

2.16.840.1.113883.10.20.22.2.1 - MedicationsSectionentriesopti

2.16.840.1.113883.10.20.22.2.1.1 - MedicationsSectionentriesre

2.16.840.1.113883.10.20.22.4.16 - MedicationActivityV2

2.16.840.1.113883.10.20.22.4.23 - MedicationInformationV

2.16.840.1.113883.10.20.1.47- UNKNOWN

2.16.840.1.113883.10.20.1.57- UNKNOWN

2.16.840.1.113883.10.20.22.4.16 - MedicationActivityV2

2.16.840.1.113883.10.20.22.4.23 - MedicationInformationV

2.16.840.1.113883.10.20.1.47- UNKNOWN

2.16.840.1.113883.10.20.1.57- UNKNOWN

2.16.840.1.113883.10.20.22.2.5.1 - ProblemSectionentriesrequir

2.16.840.1.113883.10.20.22.4.3 - ProblemConcernActV3

2.16.840.1.113883.10.20.22.4.4 - ProblemObservationV3

2.16.840.1.113883.10.20.22.4.6 - ProblemStatusDEPRE

2.16.840.1.113883.10.20.22.2.3.1 - ResultsSectionentriesrequire

2.16.840.1.113883.10.20.22.4.1 - ResultOrganizerV3

2.16.840.1.113883.10.20.22.4.2 - ResultObservationV3

2.16.840.1.113883.10.20.22.4.1 - ResultOrganizerV3

2.16.840.1.113883.10.20.22.4.2 - ResultObservationV3

2.16.840.1.113883.10.20.22.4.1 - ResultOrganizerV3

2.16.840.1.113883.10.20.22.4.2 - ResultObservationV3

2.16.840.1.113883.10.20.22.2.17 - SocialHistorySectionV3

2.16.840.1.113883.10.20.22.4.38 - SocialHistoryObservationV

2.16.840.1.113883.10.20.22.4.78 - SmokingStatusMeaningful

2.16.840.1.113883.10.20.22.4.78 - SocialHistoryObservationV

Context Sensitive Drill Down

```
213 </tbody>
214 <tr>
215 <td ID="allergen1">Codeine</td>
216 <td ID="reaction1">Hives</td>
217 <td ID="severity1">Fatal</td>
218 <td>Active</td>
219 </tr>
220 </tbody>
221 </table>
222 </text>
223 <entry typeCode="DRIV">
224 <act classCode="ACT" moodCode="EVN">
```

Test	ccdamu33465	E - 2
Location	/ClinicalDocument/component/structuredBody/component[0]/section/entry[0]/act	
Description	In Allergy Concern Act (V3), in /hl7:act[hl7:templateId/@root='2.16.840.1.113883.10.20.22.4.30']/hl7:code, the attribute code SHALL have the value 'CONC' if present[Constraint...] [Assertion...]	
Type	Fixed value	

↑ (2/167)	Test	ccdamu33465	E - 2
↓	Location	/ClinicalDocument/component/structuredBody/component[0]/section/entry[0]/act	
	Description	In Allergy Concern Act (V3), in /hl7:act[hl7:templateId/@root='2.16.840.1.113883.10.20.22.4.30']/hl7:code, the attribute code SHALL have the value 'CONC' if present[Constraint...] [Assertion...]	

```
225 <templateId root="2.16.840.1.113883.10.20.22.4.30"/>
226 <!-- ** Allergy problem act ** -->
227 <id root="36e3e930-7b14-11db-9fe1-0800200c9a66"/>
228 <code code="48765-2" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Allergies, adverse reactions, alerts"/>
229 <statusCode code="active"/>
230 <effectiveTime value="20090909">
231 <low value="20090902"/>
232 <high value="20100103"/>
233 </effectiveTime>
234 <entryRelationship typeCode="SUBJ">
235 <observation classCode="OBS" moodCode="EVN">
236 <!-- allergy observation template -->
237 <templateId root="2.16.840.1.113883.10.20.22.4.7"/>
238 <id root="4adc1020-7b14-11db-9fe1-0800200c9a66"/>
239 <code code="ASSERTION" codeSystem="2.16.840.1.113883.5.4"/>
240 <statusCode code="completed"/>
241 <effectiveTime>
242 <low value="20000215"/>
243 </effectiveTime>
244 <value xsi:type="CD" code="416098002" displayName="drug allergy" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT"/>
245 <participant typeCode="CSM">
```

Review Content Testing Validation Results – Scorecard tab

Validation Results

Model based validation

Scorecard

XML Validation Report PASSED

The document you have validated is supposed to be a wellformed XML document. The validator has checked if it is well-formed, results of this validation are gathered in this section.

The XML document is well-formed

XSD Validation detailed Result PASSED

Your XML document has been validated with the appropriate XSD schema, here is the detail of the validation outcome.

The XML document is valid regarding the schema

Gazelle Objects Checker validator results FAILED

Summary of checks

579

3937

☒ Severity

Errors57

Warnings9

Infos0

Unknowns0

Reports100

☒ Type

Datatype0

Vocabulary3

Context12

Mandatory29

Cardinality58

Fixed Value12

Test

Location

Description

Type

ccdamu33324

/ClinicalDocument

In US Realm Header (V3), in /hl7:ClinicalDocument[hl7:templateId/@root='2.16.840.1.113883.10.20.22.1.1']/hl7:legalAuthenticator/hl7:assignedEntity/hl7:id, the attribute root SHALL have the value '2.16.840.1.113883.4.6' if present (Item : CONF:1198-16823)[[Constraint...](#)] [[Assertion...](#)]

Fixed value

ccdamu33465

/ClinicalDocument/component/structuredBody/component[0]/section/entry[0]/act

In Allergy Concern Act (V3), in /hl7:act[hl7:templateId/@root='2.16.840.1.113883.10.20.22.4.30']/hl7:code, the attribute code SHALL have the value 'CONC' if present[[Constraint...](#)] [[Assertion...](#)]

Fixed value

ccdamu33466

/ClinicalDocument/component/structuredBody/component[0]/section/entry[0]/act

In Allergy Concern Act (V3), in /hl7:act[hl7:templateId/@root='2.16.840.1.113883.10.20.22.4.30']/hl7:code, the attribute codeSystem SHALL have the value '2.16.840.1.113883.5.6' if present[[Constraint...](#)] [[Assertion...](#)]

Fixed value

Tree of the templates used in this document

☐ Show Templates

Get Scorecard

Validation result

Information

File Name: DemoCCD 20161105.xml
OID: 1.3.6.1.4.1.12559.11.28.1444
Schematron: N/A (Version N/A)
Schematron Validation: N/A
Validation Date: 9/28/17 12:25:53 AM (CEST GMT+0200)
Model Based Validator: HL7 - C-CDA R2.1 - Meaningful Use Stage 3 (Version N/A)
Model Based Validation: **FAILED**
Permanent link: <https://gazellecontent.sequoiaproject.org/EVSCClient/detailedResult.seam?type=CDA&oid=1.3.6.1.4.1.12559.11.28.1444>
Data Visibility: Private - Owned By SequoiaTest / SEQUOIA

Make this result public | share this result | Validate again | Perform another validation

Validation Results

Model based validation | Scorecard

Get Scorecard

File Content

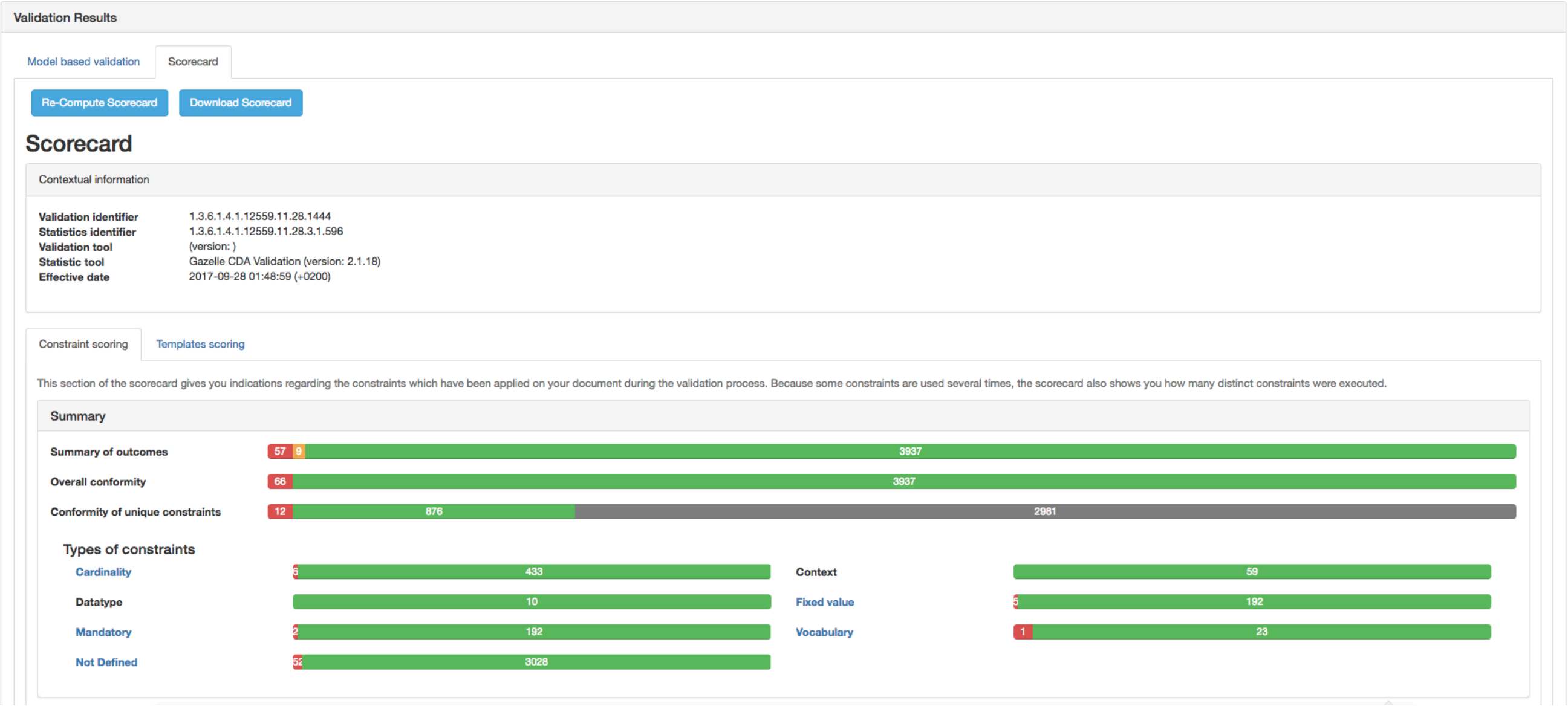
Raw XML Content | HTML View of Content

☒ View lines numbers
☐ Indent file

```
1 <?xml version="1.0"?>
2 <?xml-stylesheet type="text/xsl" href="CDA.xsl"?>
3 <!-- This is an empty C-CDA skeleton which will be used by HL7 CDA Example Task Force -->
4 <!-- This document was based on prior work by Lisa Nelson and Brian Weiss, contact John D'Amore with questions -->
5 <!-- See http://wiki.hl7.org/index.php?title=CDA_Example_Task_Force -->
6 <ClinicalDocument xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
7 xsi:schemaLocation="urn:hl7-org:v3 ../90%20HL7/00%20Standard%20-%20CDA/20130409%20C-CDA%20R1dot1_2012JUL/Updated_CDA_Schema_Files_Extension_Support/CDA_Schema_Files/infrastructure/cda/CDA_SDTC.xsd"
```

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Scorecard Report – Summary of Unique Issues



Scorecard Report – Detail of Unique Issues



XML Formatting Support for Readability

File Content	
Raw XML Content	HTML View of Content
<div><div><input checked="" type="checkbox"/> View lines numbers</div><div><input type="checkbox"/> Indent file</div></div>	
1	<?xml version="1.0" encoding="windows-1252" ?><ClinicalDocument xmlns="urn:hl7-org:v3"><realmCode code="US"><templateId root="2.16.840.1.113883.10.20.22.1.1" /><templateId root="2.16.840.1.113883.10.20.22.1.1" extension="201911129092710-0500" /><confidentialityCode code="N" codeSystem="2.16.840.1.113883.6.3" /><title>Clinical Summary</title><effectiveTime value="20191129092710-0500" /><addr use="HP"><streetAddressLine><country>USA</country></addr><telecom use="HP" value="tel:+1-205-111-1111" /><patient><name use="L"><given>N</given><family></family></name><administrativeGenderCode code="M" codeSystem="2.16.840.1.113883.5.1" codeSystemName="AdministrativeGender" /><maritalStatusCode code="S" codeSystem="2.16.840.1.113883.5.2" codeSystemName="MaritalStatusCode" displayName="Married" /><ethnicityCode code="3" codeSystem="2.16.840.1.113883.6.238" codeSystemName="CDC Race and Ethnicity" displayName="White" /><languageCommunication><languageCode code="eng" /><modeCode code="EWR" codeSystem="2.16.840.1.113883.5.4" /><id extension="75700" root="1.2.840.114350.1.13.445.3.7.2.688879" /><name>Spartanburg Regional Health Systems-TS</name><city>SPARTANBURG</city><state>SC</state><postalCode>29303</postalCode><country>USA</country></addr><pr<addr nullFlavor="NA" /><telecom nullFlavor="NA" /><assignedAuthoringDevice><manufacturerModelName>Epic - Versi</manufacturerModelName></assignedAuthoringDevice><id extension="75700" root="1.2.840.114350.1.13.445.3.7.2.688879" /><name>Spartanburg Regional Health Systems-TS</name><city>SPARTANBURG</city><state>SC</state><postalCode>29303</postalCode><country>USA</country></addr></rep<id extension="75700" root="1.2.840.114350.1.13.445.3.7.2.688879" /><name>Spartanburg Regional Health Systems-TS</name><city>SPARTANBURG</city><state>SC</state><postalCode>29303</postalCode><country>USA</country></addr></rep<id extension="38070" root="1.2.840.114350.1.13.445.3.7.2.827665" /><code code="SPS" codeSystem="2.16.840.1.113883.6.3" /><telecom use="HP" value="tel:+1-864-560-6000" /><associatedPerson><name>Nwhinone Testpatient</name></associatedPerson><high value="20191129" /></effectiveTime><performer typeCode="PRF"><functionCode code="PCP" codeSystem="2.16.840.1.113883.6.3" /><low value="20191107" /><high nullFlavor="PINF" /></time><assignedEntity><id extension="1306000948" root="2.16.840.1.113883.6.3" /><originalText>Family Medicine</originalText></code><addr use="WP"><streetAddressLine>120 HEYWOOD AVENUE</streetAddressLine></addr><country>USA</country></addr><telecom use="WP" value="tel:+1-864-573-9595" /><telecom value="fax:+1-864-560-38070" /></telecom></assignedEntity><representedOrganization classCode="ORG"><name>Spartanburg Regional Health Systems-TST</name><telecom nullFlavor="NA" /></representedOrganization><state>SC</state><postalCode>29303</postalCode><country>USA</country></addr></representedOrganization></assignedEntity><templateId root="2.16.840.1.113883.10.20.22.2.6" /><templateId root="2.16.840.1.113883.10.20.22.2.6" extension="201911129092710-0500" /><code code="5488DB8A-12B4-11EA-9CD3-00505686624A" /><code code="48765-2" codeSystem="2.16.840.1.113883.6.1" /><col span="2" width="25%" /><col width="13%" /><col width="12%" /><col width="25%" /></colgroup><thead><tr><th><td ID="allergy2allergen">Peanut</td><td><content ID="allergy2reaction1">Rash</content></td><td ID="allergy2severity">Moderate</td></tr><tr><th><td ID="allergy3allergen">Anaphylaxis</td><td><content ID="allergy3reaction1">High</content></td><td ID="allergy3severity">High</td></tr></thead><tbody><tr><td><templateId root="2.16.840.1.113883.10.20.22.4.30" /><templateId root="2.16.840.1.113883.10.20.22.4.30" extension="201911129092710-0500" /><statusCode code="active" /><effectiveTime><low value="20170811" /></effectiveTime><entryRelationship inversionInd="true" /><templateId root="2.16.840.1.113883.10.20.22.4.7" extension="2014-06-09" /><templateId root="2.16.840.1.113883.10.20.22.4.7" extension="2014-06-09" /><code code="ASSERTION" codeSystem="2.16.840.1.113883.5.4" /><text><reference value="#allergy2" /></text><status</status></tbody></table>

File Content

Raw XML Content

HTML View of Content

View lines numbers

Indent file

The following content has been modified (indented) for better visualization

1<ClinicalDocument xmlns="urn:hl7-org:v3">

2<realmCode code="US"/>

3<typeId extension="POCD_HD000040" root="2.16.840.1.113883.1.3"/>

4<templateId root="1.2.840.114350.1.72.1.51693"/>

5<templateId root="2.16.840.1.113883.10.20.22.1.1"/>

6<templateId root="2.16.840.1.113883.10.20.22.1.1" extension="2015-08-01"/>

7<templateId root="2.16.840.1.113883.10.20.22.1.2"/>

8<templateId root="2.16.840.1.113883.10.20.22.1.2" extension="2015-08-01"/>

9<id assigningAuthorityName="EPC" extension="548500a0-12b4-11ea-9cd3-00505686624a" root="1.2.840.114350.1.13.445.3.7.1.1"/>

10<code code="34133-9" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Summarization of Episode Note"/>

11<title>Clinical Summary</title>

12<effectiveTime value="20191129092710-0500"/>

13<confidentialityCode code="N" codeSystem="2.16.840.1.113883.5.25" displayName="Normal"/>

14<languageCode code="en-US"/>

15<recordTarget>

16<patientRole>

17<id extension="SPR3099600" root="1.2.840.114350.1.13.445.3.7.3.688884.100"/>

18<addr use="HP">

19<streetAddressLine>1100 Test Street</streetAddressLine>

20<county>JEFFERSON</county>

21<city>Helena</city>

22<state>AL</state>

23<postalCode>35080</postalCode>

24<country>USA</country>

25</addr>

26<telecom use="HP" value="tel:+1-205-111-1111"/>

27<patient>

28<name use="L">

29<given>Nwhinone</given>

30<family>Nwhinzzztestpatient</family>

31</name>

32<administrativeGenderCode code="M" codeSystem="2.16.840.1.113883.5.1" codeSystemName="AdministrativeGenderCode" displayName="Male"/>

33<birthTime value="19810101"/>

34<sdtc:deceasedInd xmlns:sdtc="urn:hl7-org:sdtc" value="false"/>

Stylesheet Display Support

File Content

Raw XML Content

HTML View of Content

XSL StyleSheet:

cda3

View Pretty XML Content

Please select...

cda

cda3

File Content

Raw XML Content

HTML View of Content

XSL StyleSheet:

cda

Patient

Date of birth

Sex

Race

Ethnicity

Contact info

Patient IDs

Mr. Adam Everyman

November 25, 1954

Male

White

Not Hispanic or Latino

Primary Home:
17 Daws Rd.
Blue Bell, MA 02368, US
Tel: (781)555-1212

12345 2.16.840.1.113883.19

Document Id

Document Created:

20130607100315-CCDA-CCD 2.16.840.1.113883.3.3208.101.1

June 7, 2015, 00:00:00 -0000

Care provision

Performer

Encounter for Problem from November 14, 2014 to November 14, 2014

Heartly Sixer, MD

Author

Contact info

Doctor Second, MD

Primary Home:
2222 StreetName St.
Silver Spring, MD 20901, US
Tel: +1(301)222-2222

Author

Contact info

EHR Software Name

Entered by

Contact info

Nurse Tertiary

Work Place:
3333 StreetName St.
Silver Spring, MD 20901, US
Tel: +1(301)333-3333

Authored On:

Provider EHR: MD signed at June 7, 2013, 00:00:00

Patient Safety of C-CDA Documents (Validates to Schematron without Errors) (June 7, 2015, 00AM -0000)

Patient

Documentation Of

Author

Author

Legal: Mr. Adam Frankie EVERYMAN

Care provision, Encounter for Problem, **Date/Time:** November 14, 2014, **Performer:** Heartly SIXER MD

Doctor SECOND MD, **Authored On:** June 7, 2013, 00AM

EHR Software Name, **Organization:** EHR Corporation, **Authored On:** July 17, 2013, 11:44:46AM -0500

Table of Contents ▼

Collapse All

▼ ALLERGIES, ADVERSE REACTIONS, ALERTS

Substance	Reaction	Severity	Status
Codeine	Hives	Fatal	Active

▼ Medications

Medication	Instructions	Start Date	Stop Date	Status
Percocet 5/325mg Oral Tablet (acetaminophen / oxycodone)	1 tablet PO QID	07/10/2013		active
Penicillin V Potassium	Penicillin G 250 mg orally every 6 to 8 hours	07/15/2013		active

▼ PROBLEMS

Problem	Code	Status	Onset Date	Resolution Date
Tuberculosis of lung	A15.0 (ICD-9 CM)	Active	June 23, 2014	

▼ Results

Date	Test	Value	Reference Range	Interpretation	Comments	Ordering Provider
02/22/2013 10:39	WBC	7.6 K/uL	4-10 K/uL	Normal	Not available	VIEW, TEST A. M.D.
02/22/2013 10:39	Basophils	0.5%	0.0-1.2%	Normal	Not available	VIEW, TEST A. M.D.
02/22/2013 10:39	Hemoglobin	5.5	10-16 g/dL	Normal	Not available	VIEW, TEST A. M.D.

▼ SOCIAL HISTORY

Social History Element	Description	Effective Dates
smoking	1 pack per day	1976 - 2000
Smoking Status: Former smoker	2014	
Alcohol consumption	None	1973 - 2014

▼ VITAL SIGNS

Date / Time:	Nov 14, 2014
Weight	88 lbs

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eHealth Exchange 2019 Annual Meeting

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Questions?

eHealth ExchangeTM

<https://ehealthexchange.org/testing-program/content-testing/>